REMARKS

Claims 1 and 38 have been amended to recite that the semi-insulating silicon carbide layer comprises boron and a shallow donor impurity. Support for this amendment can be found in the specification at least at pages 8-10. New Claim 49 depends from Claim 1 and recites that the shallow donor impurity is nitrogen. Support for this claim can be found in the specification at least at page 8. New Claim 50 depends from Claim 1 and recites that the semi-insulating silicon carbide layer is formed by epitaxial growth. Support for this claim can be found in the specification at least at page 8. New Claim 51 depends from Claim 50 and recites that the semi-insulating silicon carbide layer is co-doped with boron and nitrogen during epitaxial growth. Support for this claim can also be found in the specification at least at page 8.

First, it should be noted that Claim 47, which has been listed as a rejected claim in the Office Action Summary, has not been addressed in the Detailed Action. Further, the Official Action has pointed to no teaching or suggestion in any cited reference of an integrated circuit device as set forth in Claim 47 comprising first and second semi-insulating silicon carbide layers *wherein the second semi-insulating silicon carbide layer is isolated from the first semi-insulating silicon carbide layer*. In fact, the Ajit reference, which was applied in the rejection of independent Claim 38, discloses two devices formed on a single semi-insulating layer (See FIG. 4 of Ajit). Accordingly, it is respectfully submitted that Claim 47 is patentable over the cited references.

For similar reasons, newly added Claim 48 is also patentable over the cited references. In particular, the Official Action has pointed to no teaching or suggestion in any cited reference of an integrated circuit device as set forth in Claim 48 comprising first and second semi-insulating silicon carbide layers wherein the second semi-insulating silicon carbide layer is isolated from the first semi-insulating silicon carbide layer.

Claims 1, 2, 5-15 and 19 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,270,554 to Palmour et al. (hereinafter referred to as "Palmour"). This rejection, which appears on pages 2-4 of the Official Action, is respectfully traversed.

Palmour discloses a semiconductor device (*i.e.*, a MESFET) comprising a "semi-insulating silicon carbide" layer (column 8, lines 51-52 of Palmour). The Official Action, however, has pointed to no teaching or suggestion in Palmour or any other cited reference of a microelectronic device as set forth in Claim 1 comprising a substrate, a semi-insulating silicon carbide layer formed on the substrate, and a first semiconductor device formed on the semi-insulating silicon carbide layer wherein the semi-insulating silicon carbide layer comprises boron *and a shallow donor impurity* and wherein the semi-insulating silicon carbide layer has boron-related D-center defects formed therein. Accordingly, it is respectfully submitted that Claim 1 is patentable over Palmour.

Claims 2, 5-15 and 19 depend either directly or indirectly from Claim 1 and are therefore also patentable over Palmour for at least the reasons set forth above with respect to Claim 1.

Claims 12-15, which depend from Claim 1, can be further distinguished from the cited references. In particular, Claims 12-15 recite that the first semiconductor device comprises a metal-oxide semiconductor field effect transistor (MOSFET), a lateral metal-oxide semiconductor field effect transistor (LMOSFET), a bipolar junction transistor (BJT), or a junction field effect transistor (JFET), respectively. With regard to Claims 12 and 13, the Official Action relies upon FIG. 1 of Palmour. FIG. 1 of Palmour, however depicts a metal-semiconductor field effect tarnsistor (*i.e.*, a "MESFET") and not a MOSFET as set forth in either of Claims 12 or 13. In fact, Palmour is directed to MESFETs (see, for example, Column 1, Lines 12-15 of Palmour). The only disclosure of MOSFETs and other devices in Palmour appears in the "Background of the Invention" section of the reference. The "semi-insulating silicon-

carbide" layer disclosed in Palmour and relied upon in the Official Action is part of a MESFET device. The Official Action has pointed to no teaching or suggestion in Palmour to employ a semi-insulating silicon carbide layer in a metal-oxide semiconductor field effect transistor (MOSFET) or in a lateral metal-oxide semiconductor field effect transistor (LMOSFET) as set forth in Claims 12 and 13, respectively.

Similarly, with respect to Claims 14 and 15, the Official Action relies upon the disclosure in the "Background of the Invention" section of Palmour which recites "bipolar transistors" and junction field-effect transistors (JFETs). As set forth above, the "semi-insulating silicon-carbide" layer disclosed in Palmour and relied upon in the Official Action is part of a MESFET device. Further, the Official Action has pointed to no teaching or suggestion in Palmour to employ a semi-insulating silicon carbide layer in a bipolar junction transistor (BJT) or in a junction field effect transistor (JFET) as set forth in Claims 14 and 15, respectively.

In view of the above, it is respectfully submitted that Claims 12-15 can be further distinguished from the cited references.

Claims 38-40 and 44 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,310,385 to Ajit et al. (hereinafter referred to as "Ajit") in view of Palmour. This rejection, which appears on pages 4-5 of the Official Action, is respectfully traversed.

Claim 38 recites an integrated circuit device comprising:

a conducting substrate,

a first semi-insulating silicon carbide layer formed over a portion of the conducting substrate, the first semi-insulating silicon carbide layer being doped with boron and a shallow donor impurity, the semi-insulating silicon carbide layer having boron-related D-center defects formed therein;

a first device formed over the substrate; and

a second device formed over the substrate,

wherein the first semi-insulating silicon carbide layer electrically insulates the first device from the second device.

The Official Action, however, has pointed to no teaching or suggestion in Ajit, Palmour or any other cited reference of an integrated circuit device as set forth in Claim 38 comprising a semi-insulating silicon carbide layer formed on the substrate comprising boron *and a shallow donor impurity* and wherein the semi-insulating silicon carbide layer has boron-related D-center defects formed therein. Accordingly, it is respectfully submitted that Claim 38 is patentable over Ajit in view of Palmour.

Claims 39, 40 and 44 depend either directly or indirectly from Claim 38 and are therefore also patentable over Palmour for at least the reasons set forth above with respect to Claim 38.

Claims 16-18 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Palmour in view of U.S. Patent No. 4,794,608 to Fujita et al. (hereinafter referred to as "Fujita"). This rejection, which appears on pages 5-6 of the Official Action, is respectfully traversed.

Claims 16-18 depend either directly or indirectly from Claim 1. As set forth above, however, the Official Action has pointed to no teaching or suggestion in Palmour of a microelectronic device as set forth in Claim 1 comprising a substrate, a semi-insulating silicon carbide layer formed on the substrate, and a first semiconductor device formed on the semi-insulating silicon carbide layer wherein the semi-insulating silicon carbide layer comprises boron *and a shallow donor impurity* and wherein the semi-insulating silicon carbide layer has boron-related D-center defects formed therein. Further, the Official Action merely relies upon the

disclosure in Fujita of multiple devices on a substrate (pg. 5 of the Official Action). Accordingly, Claims 16-18 are patentable over Palmour in view of Fujita for at least the reasons set forth above with respect to Claim 1.

Claims 41-43, 45 and 46 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Ajit and Palmour and further in view of U.S. Patent No. 6,303,508 to Alok et al. (hereinafter referred to as "Alok"). This rejection, which appears on pages 6-7 of the Official Action, is respectfully traversed.

Claims 41-43, 45 and 46 depend either directly or indirectly from Claim 38. As set forth above, however, the Official Action has pointed to no teaching or suggestion in Ajit or Palmour of an integrated circuit device as set forth in Claim 38 comprising a semi-insulating silicon carbide layer formed on the substrate comprising boron *and a shallow donor impurity* and wherein the semi-insulating silicon carbide layer has boron-related D-center defects formed therein. Further, the Official Action merely relies upon the disclosure in Alok of a high voltage device and a high frequency device on a SiC substrate (pg. 6 of the Official Action). Accordingly, Claims 41-43, 45 and 46 are patentable over Ajit and Palmour and further in view of Alok for at least the reasons set forth above with respect to Claim 1.

Claims 49-51 have been added. These claims depend either directly or indirectly from Claim 1 and are therefore patentable over the cited references for at least the reasons set forth above with respect to Claim 1. Similarly, newly added claims 52-54, which depend from Claim 38, are patentable over the cited references for at the reasons set forth above with respect to Claim 38. In addition, each of these claims can be further distinguished from the cited references. In particular, the Official Action has pointed to no teaching or suggestion in any cited reference of a microelectronic device as set forth in any of these claims.

CONCLUSION

Applicants submit that all of the pending claims of this application are now in condition for allowance and respectfully request that the Examiner take action indicating the same. If any points remain at issue, however, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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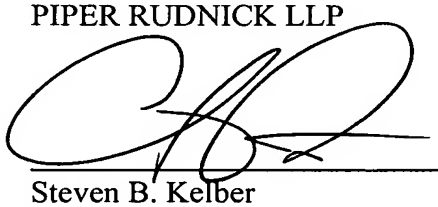

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